September 18, 2001

David Sulc
Nucor Steel
Rural Route 2, Box 311
Crawfordsville, Indiana 47933

Dear David Sulc:

Re: Exempt Construction and Operation Status,
107-14780-00038

The application from Nucor Steel, received on August 15, 2001, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following baghouse and coke breeze silo, to be located at County Road 400 East, Crawfordsville, IN 47933, is classified as exempt from air pollution permit requirements:

(a) one (1) baghouse, identified as HR/E-5, for controlling emissions from a building where EAF dust is loaded from the silo to the trucks, with a maximum dust loading of 0.73 pounds per hour and exhausting to the stack HR/E-5.

(b) one coke breeze silo with bin vent dust collector, identified as HR/E-6, with a maximum storage capacity of 90 tons and maximum throughput of 6,000 tons per year. The silo will be equipped with a pneumatic transfer system to transfer coke breeze from trailers to silo at a maximum rate of 40,000 pounds per hour using bin vent dust collector to control emissions and exhausting to the stack HR/E-6.

The following conditions shall be applicable:

(1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

(2) Pursuant to 326 IAC 6-3-2 (Process Operations), the particulate matter (PM) from the baghouse for EAF dust loading building shall be limited to less than 35 pounds per hour based on a process weight rate of 25 tons per hour as determined by the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The baghouse shall be in operation at all times the when dust is being handled at the two EAF dust silo buildings, in order to comply with this limit.

(3) Pursuant to 326 IAC 6-3-2 (Process Operations), the particulate matter (PM) from the coke breeze silo bin vent dust collector shall be limited to less than 3.1 pounds per hour based on a process weight rate of 0.68 tons per hour as determined by the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The bin vent dust collector is integral to the operation of transfer of coke breeze and shall be in operation at all times when coke breeze is being handled at the coke breeze silo. The coke breeze transfer system shall be shutdown if the bin vent dust collector is not in operation.

The approval for coke breeze silo and transfer system from trailers to silo. This does not include the downstream coke breeze handling system. A separate application for the same shall be submitted to the OAQ for approval. For evaluating the level of approval for other coke breeze processes to be permitted later, the emissions from the coke breeze silo and transfer system shall be added to the downstream coke breeze handling systems.

This existing source has submitted their Part 70 application (T107-7172-00038) on November 14, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Original Signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

GS

cc: File – Montgomery County
Montgomery County Health Department
Air Compliance – Jim Thorpe
Permit Tracking – Cynthia Bymaster
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak
Part 70 Application File - T-107-7172-00038

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for an Exemption for a Part 70 Source

Source Background and Description

Source Name:	**Nucor Steel**
Source Location:	**County Road 400 East, Crawfordsville, IN 47933**
County:	**Montgomery**
SIC Code:	**3312**
Operation Permit No.:	**107-7172-00038**
Operation Permit Issuance Date:	**Not Yet Issued**
Exemption No.:	**107-14780-00038**
Permit Reviewer:	**Gurinder Saini**

The Office of Air Quality (OAQ) has reviewed an application from Nucor Steel relating to the construction and operation of two new bag-houses and one new coke breeze silo. The approval for coke breeze silo and transfer system from trailers to silo. This does not include the downstream coke breeze handling system. A separate application for the same shall be submitted to the OAQ for approval. For evaluating the level of approval for other coke breeze processes to be permitted later, the emissions from the coke breeze silo and transfer system shall be added to the downstream coke breeze handling systems.

Emission Units and Pollution Control Equipment

The modification consists of the following emission units and pollution control devices:

(a) one (1) baghouse, identified as HR/E-5, for controlling emissions from a building where EAF dust is loaded from the silo to the trucks, with a maximum dust loading of 0.73 pounds per hour and exhausting to the stack HR/E-5.

(b) one coke breeze silo with bin vent dust collector, identified as HR/E-6, with a maximum storage capacity of 90 tons and maximum throughput of 6,000 tons per year. The silo will be equipped with a pneumatic transfer system to transfer coke breeze from trailers to silo at a maximum rate of 40,000 pounds per hour using bin vent dust collector to control emissions and exhausting to the stack HR/E-6.

Existing Approvals

Prior to this exemption approval, Nucor Steel has been operating under previous approvals including, but not limited to, the following:

(1) Significant Source Modification 107-12143-00038 issued January 19, 2001;

(2) Amendment 107-11364-00038 issued November 3, 1999;

(3) Amendment 107-11154-00038 issued August 11, 1999;

(4) Amendment 107-10915-00038 issued July 16, 1999;

(5) Registration 107-9924-00038 issued February 12, 1999;

(6) Amendment 107-9857-00038 issued September 17, 1998;

(7) Administrative Amendment 107-9751-00038 issued July 16, 1999;

(8) Administrative Amendment 107-8731-00038 issued July 31, 1997;

(9) Administrative Amendment 107-8255-00038 issued June 23, 1997;

(10) Administrative Amendment 107-8254-00038 issued July 1, 1997;

(11) Construction Permit 107-7298-00038 issued January 13, 1997;

(12) Construction Permit 107-5235-00038 issued June 20, 1996;

(13) Administrative Amendment 107-4840-00038 issued January 17, 1996;

(14) Administrative Amendment 107-4631-00038 issued September 28, 1995;

(15) Exemption 107-4263-00038 issued January 5, 1995;

(16) Exemption 107-4100-00038 issued October 27, 1994;

(17) Registration 107-3794-00038 issued July 28, 1994;

(18) Construction Permit 107-3702-00038 issued March 28, 1995;

(19) Construction Permit 107-3599-00038 issued September 22, 1994; and

(20) Construction Permit 107-2764-00038 issued November 30, 1993.

Air Pollution Control Justification as an Integral Part of the Process

The company has submitted the following justification such that the coke breeze bin vent dust collector be considered as an integral part of the pneumatic coke breeze transfer system:

(a) The coke breeze is transferred through a pneumatic system from the trailers to the silo.

IDEM, OAQ has evaluated the justifications and agreed that the bin vent dust collector will be considered as an integral part of the coke breeze transfer process. Therefore, the permitting level will be determined using the potential to emit after the bin vent dust collector. Operating conditions in the proposed permit will specify that this bin vent dust collector shall operate at all times when the coke breeze transfer process is in operation.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
HR/E-5	EAF dust handling building	25	1.5	8,500	70
HR/E-6	Coke breeze Silo	37	0.67	300	70

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on August 15, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations.

Potential To Emit of the modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as Athe maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.@

Pollutant	Potential To Emit (tons/year)
PM	3.2
PM-10	3.2
SO_2	-
VOC	-
CO	-
NO_x	-

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants are less than the levels listed in 326 IAC 2-1.1-3(d)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

(b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.

County Attainment Status

The source is located in Montgomery County.

Pollutant	Status
PM-10	Attainment
SO_2	Attainment
NO_2	Attainment
Ozone	Attainment
CO	Attainment
Lead	Attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Montgomery County has been designated as

attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Montgomery County has been classified as attainment or unclassifiable for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Existing Source PSD, Part 70 or FESOP Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM10	162
SO_2	139
VOC	52
CO	601
NO_x	273

(a) This existing source is a major stationary source because it is in one of the 28 listed source categories and at least one regulated pollutant is emitted at a rate of 100 tons per year or more.

(b) These emissions were based on actual emissions for 1999 from Nucor Steel mill based on Emissions Inventory of IDEM.

Proposed Modification

PTE from the proposed modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Pollutant	PM (ton/yr)	PM10 (ton/yr)	SO_2 (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO_x (ton/yr)
Proposed Modification	3.2	3.2	-	-	-	-
PSD or Offset Significant Level	25	15	40	40	100	40

(a) This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source has submitted their Part 70 application (T107-7172-00038) on November 14, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

This status is based on all the air approvals issued to the source.

Federal Rule Applicability

(a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Individual Facilities

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) from the baghouse for EAF dust loading building shall be limited to less than 35 pounds per hour based on a process weight rate of 25 tons per hour as determined by the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The baghouse shall be in operation at all times the when dust is being handled at the two EAF dust silo buildings, in order to comply with this limit.

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) from the coke breeze silo bin vent dust collector shall be limited to less than 3.1 pounds per hour based on a process weight rate of 0.68 tons per hour as determined by the following equation:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and
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The bin vent dust collector is integral to the operation of transfer of coke breeze and shall be in operation at all times when coke breeze is being handled at the coke breeze silo. The coke breeze transfer system shall be shutdown if the bin vent dust collector is not in operation.

Conclusion

The construction and operation of this EAF building Fugitive dust silo and coke breeze silo shall be subject to the conditions of the attached Exemption 107-14780-00038.

Indiana Department of Environmental Management
Office of Air Quality

Appendix A – Emission calculations for Technical Support Document (TSD) for Exemption Operation

Source Name: **Nucor Steel**
Source Location: **Route 2, Box 311, Crawfordsville, Indiana 47933**
County: **Montgomery**
SIC Code: **3312**
Exemption No.: **107-14780-00038**
Permit Reviewer: **GS**

Assume all PM to be PM-10

1. Fugitive Dust Baghouse for EAF dust silo buildings

Grain Loading = 0.01 grains per cubic feet of air

Air Flow rate = 8,500 cubic feet per minute

Dust loading = $\frac{0.01 \text{ grains}}{\text{Cubic feet of gas}} \times \frac{8{,}500 \text{ cubic feet}}{\text{minute}} \times \frac{1 \text{ pound}}{7000 \text{ grains}} \times \frac{60 \text{ minute}}{\text{hour}}$

= 0.73 pounds per hour

Hours per year = 8760

PM/PM-10 Emissions before control
= 0.73 * 8760 = 6394.8 pounds per year
= 6394 / 2000 tons per year
= 3.2 tons per year

Efficiency of control for the baghouse = 99%

PM/PM-10 Emissions after control
= 0.01*3.2 = 0.032 tons per year

2. Coke breeze transfer silo bin vent dust collector

PM/PM-10 emission factor = 2.2 pounds per ton of coke breeze (based on emission factor for lime transfer and conveying (Fire Version 6.23; SCC # 30501615).

Maximum annual throughput = 6000 tons

PM/PM-10 Emissions after control (as baghouse is integral to the process)

= $\frac{6000 \text{ tons} \times 2.2 \text{ lb}}{\text{year}} \times \frac{1 \text{ ton}}{\text{ton}} \times \frac{(100\text{-}99\% \text{ collection eff.})}{2000 \text{ pounds}}$

= 0.066 tons per year

3. Total PM/PM-10 emissions from this modification

= 3.2 + 0.066 = 3.2 tons per year